ABSTRACT

The present invention provides viral vectors that have been engineered to contain a synthetic promoter that controls at least one essential gene. The synthetic promoter is induced by a specific gene product not normally produced in the cells in which the viral vector is to be transferred. The vectors are propagated in producer or helper cells that express the inducing factor, thereby permitting the virus to replicate to high titer. The lack of the inducing factor in the target cells precludes viral replication, however, meaning that no vector toxicity or immunogenicity arises. Where the virus carries a gene of interest, this should provide for higher level expression for longer periods of time than with current vectors. Methods for making the vectors, helper cells, and their use in protein production, vaccines and gene therapy are disclosed.